

Applicant : C. Tondering  
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### REMARKS

Below, the applicant's comments are preceded by related remarks of the examiner set forth in small bold type.

Claims 1, 4, 5, 8-10, 17-18, 21-23, and 25-26, 29-32, 34, 35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowe (USPN 6,125,396) in view of Nicola et al. ("Fast Simulation of the Leaky Bucket Algorithm" Proceedings of the 1994 Winter simulation Conferences Society for Computer Simulation International (c) 1994) (hereinafter Nicola).

Referring to claims 1, 10, 17, 18, and 26, Lowe discloses a method comprising: representing, by a current resource usage value, a total amount of a resource that is managed by a software tool and is currently in use by at least two processes (col. 4, line 30; col. 7, lines 15-16);

in connection with additional use of the resource by one of the processes, and at a time when increases in the current usage value by the amount of additional use does not exceed a specified maximum resource usage level, increasing the current usage value by the amount of additional use, and allowing the additional use of the resource by the process (Figure 4; col. 5, line 55-62; col. 7, line 39 to col. 8, line 45).

Lowe does not disclose that the total resource usage is decreased using a preset amount per unit of time. However it is well known and expected in the art that a leaky bucket system has the ability to have a predetermined (i.e., constant) drain level (i.e., constant rate usage by the clients of Lowe). In support of this statement Nicola discloses another leaky bucket algorithm wherein tokens are generated at a fixed interval (i.e. preset amount per unit of time) (p. 266, col. 2, 72). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Nicola with Lowe to effectively police a QoS algorithm thereby increasing the fairness of the system and allowing starved processes access to the resource as supported by Nicola p. 266, col. 2, paragraph 1).

In amended claim 1, a "current usage value" represents a total amount of a resource that is currently in use by both a first process and a second process. Each "maximum current usage level" is associated with a particular process, and is used in determining whether the particular process can increase its usage of the resource. Different processes may be associated with different "maximum current usage levels". A request by the first process to increase resource usage may be denied (e.g., because increasing the "current usage value" by the amount of additional use exceeds the "maximum current usage level" associated with the first process),

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whereas a request by the second process to increase the resource usage may still be allowed (e.g., because increasing the "current usage value" by the amount of additional use does not exceed the "maximum current usage level" associated with the second process).

In claim 1, whether a process can increase its use of a resource depends not only on the amount of resource that the process itself uses, but also depends on the amount of resource that is used by the other process. For example, in response to a request by the first process for additional use of the resource, the first process is allowed to make the requested additional use, and the current usage value is increased by the amount of requested additional use, provided that the requested additional use plus the current usage value would not exceed the maximum current usage level associated with the first process. Whether the requested additional use by the first process plus the current usage value would exceed the maximum current usage level associated with the first process depends partly on the current usage value, which in turn depends on the amount of resource used by both the first and the second processes.

Claim 1 provides a mechanism to enforce voluntary restraint on usage of resources by competing processes (see page 12, lines 19-20 of the specification). A higher maximum resource usage value may be specified for an important or critical process, such as a nuclear reactor system, to allow the process to access a resource for a greater period of time to execute the process (see page 10, line 21 to page 11, line 3 of the specification).

Lowe discloses the use of a leaky bucket model in allocating bandwidth, in which each client is associated with a reserve that is analogous to a water level of a leaky bucket. While Lowe mentions "actual rate of resource usage" (col. 4, lines 37-38), this refers to the actual rate of resource usage by a particular client. Lowe does not disclose or suggest "representing, by a current usage value, a total amount of a resource that is managed by a software tool and currently in use by both a first process and a second process," as recited in claim 1.

In Lowe, whether a client can increase usage of a resource depends on its own usage of the resource and the amount of reserve, and does not depend on the usage of other clients. Thus, Lowe does not disclose or suggest "in response to a request by one of the processes for additional use of the resource, allowing the process to make the requested additional use and

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increasing the current usage value by the amount of requested additional use, provided that the requested additional use plus the current usage value would not exceed the maximum current usage level associated with the requesting process," in which the "current usage value" represents "a total amount of a resource that is managed by a software tool currently in use by both a first process and a second process," as recited in claim 1.

What is lacking in Lowe is also not disclosed or suggested in Nicola, which discloses a leaky bucket algorithm used in an ATM network, in which a counter is incremented by one each time a data cell arrives, and decremented at fixed intervals.

Claims 10, 17, and 18 are patentable for at least the same reasons as claim 1.

The dependent claims are patentable for at least the same reasons as the claim on which they depend.

Any circumstance in which the applicant has addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner. Any circumstance in which the applicant has made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims. Any circumstance in which the applicant has amended a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Please apply \$27 for excess claim fees, and any other charges or credits to deposit account 06-1050.

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Respectfully submitted,

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*\* See attached document certifying that Rex Huang has limited recognition to practice before the U.S. Patent and Trademark Office under 37 CFR § 10.9(b).*

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**Expires: January 1, 2005**



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Director of Enrollment and Discipline**